INSTITUTE OF PUBLIC HEALTH

COLLEGE OF MEDICINE AND HEALTH SCIENCES

UNIVERSITY OF GONDAR

PREVALENCE OF ACTIVE TRACHOMA AND ASSOCIATED FACTORS AMONG CHILDREN AGE 1 TO 9 YEARS IN DERA WOREDA, NORTHWEST ETHIOPIA: A COMPARATIVE CROSS-SECTIONAL STUDY

BY;-

METADEL ALEMAYEHU (BSc.)

ADVISORS

DIGSU NEGESSE (BSc, MPH)

AMARE TARIKU (BSc, MSc.)

A THESIS SUBMITTED TO INSTITUTE OF PUBLIC HEALTH, COLLEGE OF MEDICINE AND HEALTH SCIENCES, UNIVERSITY OF GONDAR, IN PARTIAL FULLFILLMENT OF THE REQIEREMENTS FOR THE DEGREE OF MASTERS OF PUBLIC HEALTH

JUNE/2014

GONDAR, ETHIOPIA

UNIVERSITY OF GONDAR

COLLEGE OF MEDICINE AND HEALTH SCIENCES

INSTITUTE OF PUBLIC HEALTH

PREVALENCE OF ACTIVE TRACHOMA AND ASSOCIATED FACTORS AMONG CHILDREN AGE 1 TO 9 YEARS IN DERA WOREDA, NORTHWEST ETHIOPIA: A COMPARATIVE CROSS-SECTIONAL STUDY

BY;-

Metadel Alemayehu (BSc.)

Mobile +251-918781519

Email alemayehumetadel@gmail.com

Approved by the Examining Board

_____ _____

Director, Institute of Public Health

Advisors

1. Mr. Digsu Negese _____

2. Mr. Amare Tariku _____

_____ _____

Examiner

Acknowledgement

I would like to thank University of Gondar, College of Medicine and Health sciences, Institute of Public Health, for their overall support to undergo this research report.

I am very thankful to my advisers Mr. Digsu Negese and Mr. Amare Tariku for their constructive comments and advise.

I am grateful to the study participants and data collectors for their participation and commitment.

I would like to also thank Dera woreda health office for its equipment support. Finally I extend my gratitude to all people who supported me during this work.

Acronyms

BSc.	Bachelor of Science
CI	Confidence Interval
EBR	Ethiopian Birr
GC	Gregorian Calendar
MPH	Master of Public Health
OR	Odds Ratio
SAFE	Surgery, Antibiotics, Facial Cleanness and Environmental Sanitation
SPSS	Statistical Package for Social Sciences
TF	Trachomatous Follicle
TF/TI	Trachomatous Follicle and/or Trachomatous Intense
TT	Trachomatous Trichiasis
WHO	World Health Organization
ZHD	Zonal Health Department

Table of Contents

List of Figures

List of Tables

List of Annexes

Abstract

Background: Trachoma is the leading cause of preventable blindness in developing countries. Each year, trachoma leads to thousands of people getting blind. Blindness leads to disability and loss of productivity within a country. Hence, this study helps to assess factors that contribute to the prevalence of active trachoma in the study area.

Objective: To assess the prevalence and associated factors of active trachoma among children age 1 to 9 years old in Rural and Urban Kebeles, Dera Woreda, Northwest Ethiopia.

Methods: A comparative cross-sectional study was conducted from March to April 2014. Multi-stage sampling technique was used to selecting a total of 671 children (age1-9 years) from 671 households. All children were examined for trachoma by Integrated Eye Care Workers who were experienced in using the WHO simplified grading scheme. Interviews and observations were used to assess risk factors for trachoma. EPI info version 7.1.1.14 and SPSS version 16 were used for data entry and analysis respectively. Descriptive statistics was used to describe the data in relation to relevant variables. Binary logistic regression analysis technique was carried out and odds ratio with 95% confidence intervals were computed.

Result: A total of 671 children (215 were urban and 456 were rural) from 671 households were participated in the study. The overall prevalence of active trachoma among children 1- 9 years was 15.6% (95%CI 12.8 – 18.3) (9.3% urban and 18.6% rural). Children with unclean face [AOR=4.04; 95%CI 2.11-7.73], discharge on face [AOR=5.31; 95%CI 2.71-10.37] and feces around the main house [AOR=2.7; 95%CI 1.53-4.78] were more likely to develop active trachoma.

Conclusion: This study revealed that the overall prevalence of active trachoma among children was high**.** The prevalence was high among children from rural residence as compared to children from urban areas. Unclean face, discharge on faces and feces around the main house were significant factors for the occurrence of active trachoma in both rural and urban areas of Dera woreda.

1. INTRODUCTION

1.1. Statement of the problem

Trachoma, caused by Chlamydia trachomatitis, is the most common infectious cause of blindness worldwide. Once epidemic, trachoma has largely disappeared from developed countries like Europe and North America. However, it continues to be endemic in many under developed countries, particularly in rural areas of Africa, Asia, Australia and the Middle East (1). According to the World Health Organization (WHO), trachoma is currently responsible for more than 3% of the world's blindness (2).

Trachoma is found to be associated with poverty, poor sanitation, and low socio economic status. In Asia, some parts of Latin America, Africa, the Middle East and the Western Pacific, it is estimated that 320 million people live in endemic areas and 8 million people suffer from trachomatous trichiasis TT(3). Overall, Africa is the most affected continent, About 27.8 million cases of active trachoma (68.5%of all) and 3.8 million cases of trichiasis (46.6% of all) are located in 28 of the 46 countries, with an estimated population of 279 million living in endemic areas(4).

In Ethiopia from the total 75 million populations, 1.2 million are blind, 2.8 million people have low vision, 9 million children of the age group 1-9 years have active trachoma, and 1.3 million adults live with trachomatous trichiasis (TT). Amhara region had the highest prevalence of both active trachoma in children aged1-9 years (62.6%) and trichiasis in adults aged 15 years and above (5.2%) (5).

This study will be aimed to determine and compare the prevalence of active trachoma in urban and rural part of Dera woreda and to decide if trachoma has been eliminated as a public health problem, or whether intervention is necessary. Risk factor data was also collected to identify potential risk factors for Trachoma in this area.

1.2 Literature review

1.2.1 Worldwide magnitude and burden of active trachoma

According to WHO, globally about 37 million people are blind and 124 million people have low vision. Internationally, about a quarter of blindness is avoidable and is mainly caused by cataract and trachoma (6).

Data from WHO indicate that there are more than 3 million people requiring treatment for trachoma in endemic areas in Latin America, especially in Brazil, Guatemala and Mexico. In 2005 it was believed that the prevalence of the inflammatory and follicular phase of the disease in children under the age of 10 was 4.5% in Brazil, 1.9% in Guatemala and 1.9% in Mexico (7).

According to the WHO Global Health Atlas, more than half of a million cases of trachoma occur in the Middle East and North Africa Region, with the largest number in Yemen (204,000 cases), followed by Algeria and Iraq (roughly 140, 000 cases each) (8).

In Africa the highest prevalence of active trachoma and trichiasis remains in the Sahel area of West Africa and Savannah areas of east and central Africa. A high proportion of TF prevalence in 1-9 year – olds in South Sudan (83%), Ethiopia (64%), Guinea (50%), Uganda (37%), Chad (38%), Central Africa Republic (38%) and Tanzanian (32%) (9).

Studies conducted in Sierra Leon shows that the prevalence of TF in children 1-9 years of age was <5%. Kambia had the highest prevalence of active trachoma in children with 3.52% TF and 3.72% TF and/or, Port Loko had the second highest prevalence of active trachoma in children with 1.14% and 1.14% TF (10).

Studies in Gambia, Cameroon and Nigeria shows that the overall prevalence of active trachoma in children aged 1- 9 years of age were 3.8%, 12% and 37.7% respectively. The highest prevalence found in Nigeria next to Cameroon and Gambia (11, 12, 13).

Population based survey in southern Malawi shows the prevalence of trachomatous inflammation, follicular (TF) among children aged 1–9 years was 13.6% (CI 11.6–15.6) (14)

Community – based trachoma surveys conducted from 2008 – 2011 in Niger, Mali and Nigeria, among children aged 1-9 years, indicates that the prevalence of TF was 23.4%, 5.7% and 5.0% respectively (15).

1.2.2 Magnitude of active trachoma in Ethiopia

In Ethiopia, one of the countries labeled as “trachoma endemic” by WHO an estimated 68, 961, 045 people live in trachoma endemic areas – the largest number in Africa (16).

The national prevalence of active trachoma (either TF or TI) among children with age group of 1 – 9 years is 40.14%. Considerable regional variations are observed in the occurrence of active trachoma; the highest prevalence is in Amhara (62.6%), Oromia (41.3%), SNNP (33.2%), Tigray (26.5%), Somali (22.6%) and Gambella (19.1%). Over 9 million 1-9 year old children live with active trachoma (5).

A cross-sectional community – based study conducted in Ankober by the 2009 and by the year 2012 in Baso Liben West Gojjam, among children whose age 1- 9 years, the prevalence of active trachoma was 53.9% , 24.1 respectively(17,18).

More recent studies conducted Dangla woreda (2012) in Amahra region and kersa woreda (2013) in oroma region shows the prevalence of active trachoma among children age 1-9 year were 12 % and 25.2% respectively(19,20).

1.2.3. Risk factors for active trachoma

There are other factors which are found to have statistically significant association with active trachoma. The risk factors for active trachoma vary in different studies. Risk factors include socio –demographic and economics; personal and environmental factors are major category and significantly associated with risk of active trachoma.

1.2.3.1. Socio demographic and economic factor

Several population based cross -sectional studies have found a positive association between the environmental factors and active trachoma in the household or among children**.**

A national Studies Conducted in Ethiopia among rural and urban population showed that , the prevalence of active trachoma among the rural population were fourfold to the urban which is 42.5% in rural where as 10.7% in urban population (5).

Studies conducted Ankober and Baso liben revealed that low socio economic status and educational status of father and mother were independently associated with active trachoma (17, 18)

Implementation of health extension packages with 16 components, a special program integrated to the primary health care system of Ethiopia designed to increase health care coverage and to empower communities to private classical poverty related diseases including trachoma (19)

1.2.3.2. Environmental factor

The most important household factor associated with trachoma was the absence of a toilet in the compound. This has implications for environmental hygiene, as people in the community will naturally defecated in\ the open and further increase the fly density in the community (21).

A study in China shows human and animal face was associated with active trachoma in children. In addition children had a 2.5 times higher risk of active trachoma if they lived in households that reported defection close to the house (22).

Studies in India shows residents had access to potable water within 30 minutes of walking distance from their house-holds, no waste water drainage system, Presence of animal pens in close vicinity to the households and no proper garbage disposal facility available were significantly associated with occurrence of TF in children aged 1–9 years. (23)

A study conducted in Nigeria indicates that, lack of personal and environmental hygiene were reported as risk factors for trachoma and the presence of flies on the face and lack of a toilet in the compound were independently associated with trachoma (13).

1.2.3.3. Child Personal factor

Studies conducted In china revealed that ,Girls were highly vulnerable to active trachoma as compared with boys (25.79% versus 19.74%,).The prevalence of trachomatous follicle (TF), trachomatous inflammation (TI), and trachomatous scarring (TS) was 5.68%, 19.21%, 0.56%, respectively. TI was more prevalent in girls than in boys (22.90% versus 16.75 %,)(24).

A study conducted in Niger among boys and girls indicates that, the prevalence of the disease were similar among both sexes where as the highest prevalence of the disease were reported among children whose age 2-3 years of old (25).

A study conducted in Tanzania and Gambia also showed that, ocular or nasal discharge, a low level of household head educational status, being aged ≥1 year, flies on the face of the child's, and overcrowding were independently associated with follicular trachomatitis (TF) (26).

A study in Guragie zone shows the chance of getting active trachoma was lower for children who had received azithromycin three times than twice or once. This finding shows that repeated dose s of azithromycin are important for reduction and elimination of the infection (27)

The Baso liben study shows that, access to water source, amount of water consumption per capita, frequency of latrine usage, utilization rate of soap, unclean face and number of flies on the face of the child were independently associated with active trachoma (18)

1.3 Conceptual Frame work

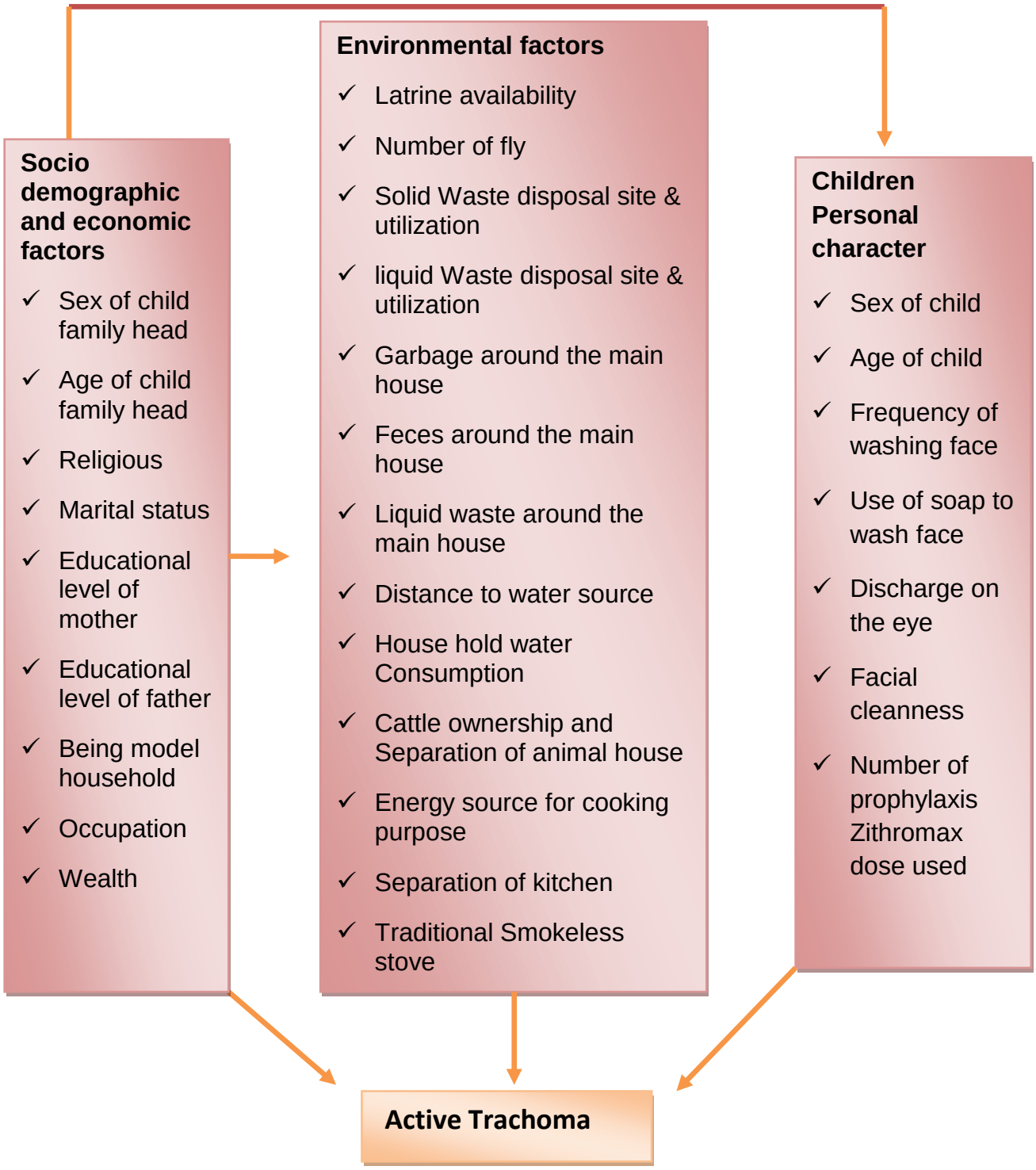


Figure 1 Conceptual framework on prevalence active trachoma and associated factors among children age 1-9 years.

1.3. Justification of the study

Trachoma has always been recognized as a serious public health problem in Ethiopia. Several studies were conducted in different parts of the country. Those studies indicated that the prevalence of active trachoma in Ethiopia was among the highest as compared to Sub-Sahara African Countries.

This study was conducted in Dera woreda where the highest prevalence of active trachoma was observed based on the report of south Gondar zonal health department. Dera woreda was one of the woreda found in Amhara regional state and the prevalence rate of trachoma in Amhara regional state was estimated to be high based on national survey report of 2006.

Annual performance of the woreda indicates latrine coverage, house hold heath extension package coverage and mass treatment for Zithromax coverage is high, but trachoma is still a public health problem compared with other woredas. So this study helps in assessing factors which contributes to high prevalence of trachoma. It also help to develop evidence based interventions for regional, zonal, woreda, kebele decision makers, health workers and other stakeholders to improve the health promotion and disease prevention services which in turn reduce the prevalence of trachoma in the woreda community.

2. OBJECTIVIES

2.1. General objective:-

- ✓ To assess the prevalence and associated factors of active trachoma among children age 1 – 9 years old in Rural and Urban kebeles, Dera Woreda, North West Ethiopia.

2.2. Specific objectives:-

- ✓ To estimate the prevalence of active trachoma among children age 1 -9 years old in urban and rural kebeles.
- ✓ To compare the prevalence of active trachoma among children with the age group of 1 -9 years old in Rural and Urban Kebeles.
- ✓ To identify factors associated with active trachoma among children with the age group of 1-9 years in urban and rural kebeles.

3. METHODS

3.1. Study design and period

A Community-based comparative cross- sectional study was conducted from March to April 2014.

3.2 Study area

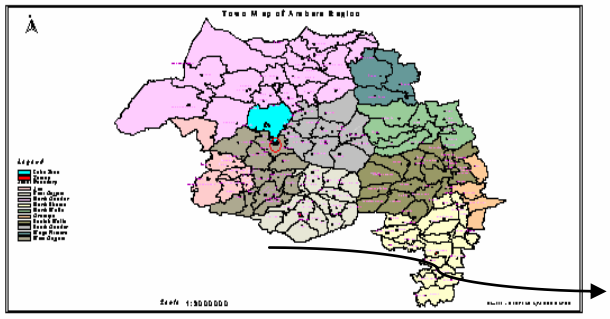


Figure 2 Amhara region map

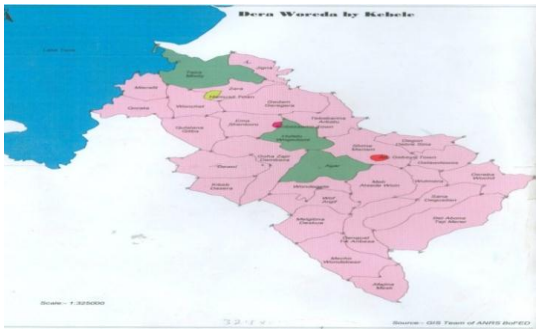


figure 3 Dera woreda map

The study was carried out in Dera district, one of the 12th woredas in South Gondar zone Amhara region/ Ethiopia. Anabesami (capital of Dera woreda) is 42 and 100 kilometers away from Bahirdar and – (ANRS capital) North East direction and Deberetabor – (capital of South Gondar administrative Zone).

Based on 2013 data taken from Dera woreda health office, the current population size of Dera woreda is 279, 847; of this urban residence are 22,504 and rural residence of 257, 343 and a total of 63, 564 households are found in the woreda. For administrative purpose the woreda is divided into 32 kebeles in which 3 of them are urban kebeles.

Totally there are 424 hand dug wells, 54 springs, 13 medium deep wells, and 3 deep wall wares are constructed and on service. All the above water schemes account water coverage in rural are 56.57%, in urban 46.4% and at woreda level of 55.69%.

In this woreda there are 44 first cycles (1-4 grade), 32 junior secondary schools (5-8 grade), 3 senior high schools and 2 preparatory schools.

The study woreda have 11 health centers and 34 health posts and currently the health service coverage of the woreda approximates to 93%.In addition the health extension package and latrine coverage is around 87% and 91% respectively.

3.3 Source population and Study population

3.3.1 Source population

All children with the age group 1-9 years in Dera woreda.

3.3.2 Study population

All children whose age is between 1-9 years old living in selected kebeles of the wereda were the study population.

3.3.3 Inclusion criteria

All children aged 1-9 years old in the randomly selected households.

3.3.4 Exclusion criteria

Children who were unable undergo physical examination due to serious medical illness were excluded from the study.

3.4 Sample size

The sample size determination is based on the rural prevalence of active trachoma among children age 1-9 years old in kirsa district south west Ethiopia (25.2%) and for urban prevalence of active trachoma among children age 1-9 years old conducted in Dangela Town administration woreda, Awi zone, Ethiopia (12%) with 95% confidence interval, 80% power of the study, 1:2 ratio, two population proportion formula used and calculate by EPI INFO version 1.1.7.14 which gives as

Urban = 105

Rural = 211

Total = 316 * 2 design effect = 632 Add 10% non response = Total sample size is 695

3.5 Sampling procedure

Multistage sampling technique was used to select a study participant. Six out of 29 rural and 2 out of 3 urban kebeles by lottery method then, households from each kebele were selected by systematic random sampling technique and the sample size in each kebele was allocated proportionally to the size of households found in it. Lottery method was used to select a child in houses which had more than one child with the age of 1-9 years. If there was no child in the selected house a child in the next house was selected.

Schematic presentation of sampling procedures

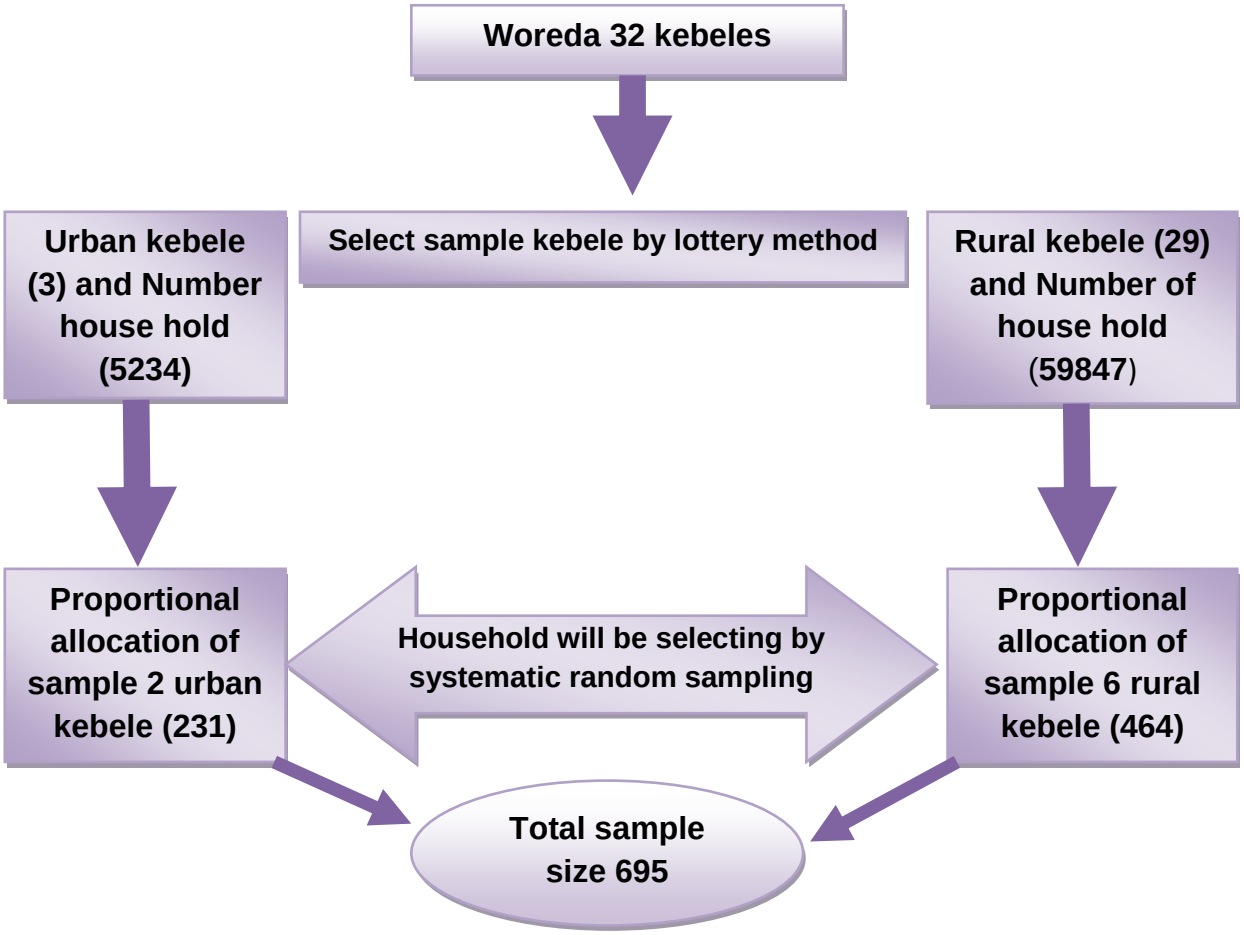


Figure 4: Schematic presentation of sampling procedure on prevalence of active Trachoma and associated factors among children age 1-9 years in Dera woreda, Northwest Ethiopia, 2014

3.6 Variable

3.6.1 Dependent variable

- ✓ Active trachoma(Yes/No)

3.6.2 Independent variables

3.6.2.1 Child families Socio demographic and economic factors

Sex of the child family head, marital status, age of the child family head, Wealth, religion, educational status of the mother, educational status of the father, occupation, being model household of the health extension package

3.6.2.2 Child Personal variables:

Sex of child, Age of child, frequency of washing face, the use of soap to wash face, discharge on the eye, facial cleanness, Number of fly in child face and number of Zithromax prophylaxes dose used.

3.6.2.3 Environmental variables

Types of water source, latrine availability and utilizations, number of flies, solid waste disposal site, liquid waste disposal site, distance to main water source, house hold water consumption, garbage around the main house, feces around the main house, liquid waste around the main house, energy source for cooking purpose, separation of kitchen, separation of animal house, use traditional smokeless stove.

3.7 Operational definition

Model household*:* Households that have successfully completed the 16 HEP packages and learn 96 recommended hour by health extension worker

Active trachoma: The presence of at least five or more follicles in the upper tarsal conjunctiva and/or pronounced inflammatory thickening of the tarsal conjunctiva that obscures more than half of the normal deep tarsal vessels.

3.8 Data collection procedures and Data quality control

3.8.1 Data collection procedures

Data were collected by face to face interview and observation using a structured and pre-tested questionnaire. The questionnaire was first prepare in English and translated to Amharic, and then it was again translated back to English by another person. A total of 15 health professionals were selected as data collector and four supervisors were assigned to the data collection for house hold head interviews. Trachoma grading was examined by 5 eye integrated worker (4 health officers and 1 diploma nurse), by wearing 2.5x loupes, assessed each eye for signs of active trachoma using the WHO simplified grading scheme. One supervisor (optometry) for trachoma grade examination supervision from University of Gondar was used.

3.8.2 Data quality control

The quality of data was assured by proper designing and pre-testing of the questionnaires in one of the Kebeles other than the selected kebeles with similar socio-demographic characteristics, then 22 households were selected randomly to ensure its validity. Training was given for both data collectors and supervisors by the principal investigator for a day after the pretest. Findings of the pre-tests were discussed during the training day and all the concerns were clarified.

Every day after data collection, questionnaires were reviewed and checked for completeness by the supervisors and principal investigator and the necessary feedback was offered to the data collectors in the next morning.

3.9 Data processing &Analyzing

The data were cleaned to check for its completeness, consistency and the presence of missed values and variables. Any error identified was corrected as necessary. Then, it was entered into a pre-designed format in Epi Ifo version 7.1.1.4 and transferred to SPSS version 16 for analysis. Assumptions to apply binary regression including fitness of model were assessed. Descriptions of the main findings were done using frequencies, percentages and summary statistics.

To assess the association between dependent and independent variables, Binary Logistic regression Model was fitted. First, bivariate analysis between each independent variable and the dependant one was carried and independent variables with a p-value ≤ 0.2 were then included in the multi-variate analysis. Those predictors with p-value < 0.05, in the multi-variate analysis, were considered as significant predictors for active trachoma and included in the final model. Odds ratio and 95% confidence interval were also reported.

4. ETHICAL CONSIDERATION

Ethical clearance was obtained from Institutional Review Board of Institute of Public Health, College of Medicine and Health Sciences, University of Gondar. Permissions were taken from the concerned bodies of Amhara Regional Research and Technology Transfer Office, ZHD, woreda health office and selected kebele through formal letter. Verbal consent was obtained from the study participants. They are also informed that they have full right not to participate in the study, if they are not willing. To insure confidentiality, anonymity was explained clearly for participant. Participants found to have active trachoma were treated with antibiotics (TTC ointments).

5. RESULT

5.1. Socio-demographic and economics characteristics of child families

A total of 671 children from 671 households were participated in this study. The response rate was 96.4%. Out of six hundred seventy one, 454(67%) of the child families respondent were females, 89.1% were urban and 61% were rural. Regarding marital status, about 613(91.4%) was married, in which 84.7% and 94.5% of Urban and Rural child families were married respectively.

Regarding the educational status of the fathers and mothers of child, 487(73.5%) of the fathers and 530(79%) of mothers who live in the urban cannot read and write as compared to 370(76%) fathers and (75.3%) of the mothers who live in the rural area.

The majority of the child families were orthodox 638 (95.1%), 187(87%) urban and 451(98.9%) for rural and almost all child families are with Amhara ethnicity. When we look at the occupational status of the child families 460(68.6%) are farmers of which 4(1.9%) for urban and 456(99.1%) for rural.

More than two third of child families 477 (71.1%) did graduate as model house hold for health extension package of which 127(59.1%) urban and 350 (76.8%) rural. (Table 1)

Table 1 Socio demographic and economic characteristics of child families (children father and mother) in Dera woreda, Northwest Ethiopia, 2014

Variable	Urban	Rural	Total
Sex of the respondents			
Male	39 (18.1%)	178 (39%)	217 (32.3%)
Female	176 (81.9%)	278 (61%)	454 (67.7%)
Age of the respondent			
18-28	58 (27%)	95 (20.8%)	153 (22.8%)
29-38	108 (50.2%)	208 (45.6%)	316 (47.1%)
39-48	37 (17.2%)	114 (25%)	151 (22.5%)
+49	12 (5.6%)	39 (8.6%)	51 (7.6%)
Marital status			
Married	182 (84.6%)	431 (94.5%)	613 (91.4%)
Single	4 (1.9%)	0 (0%)	4 (0.6%)
Divorce	23 (10.7%)	12 (2.6%)	35 (5.2%)
Widowed	4 (1.9%)	7 (1.5%)	11 (1.6%)
separated	2 (0.9%)	6 (1.4%)	8 (1.2%)
Family size			
≤4	113 (52.6%)	219 (48%)	332 (49.5%)
>4	102 (47.4%)	237 (52%)	339 (50.5%)
Religion			
Orthodox	187 (87%)	451 (98.9%)	638 (95.1%)
Muslim	28 (13%)	5 (1.1%)	33 (4.9%)

Father Educational status			
Cannot read and write	91 (42.7%)	396 (88%)	487 (73.5%)
Read/write	37 (17.4%)	50 (11.1%)	87 (13.1%)
Primary	30 (14.1%)	3 (0.7%)	33 (5%)
Secondary	21 (9.9%)	1 (0.2%)	22 (3.3%)
Preparatory and above	33 (15.6%)	1 (0%)	34 (5.1%)
Mother Educational status			
Cannot read/write	103 (48.4%)	427 (93.8%)	530 (79.3%)
Read and write	38 (17.8%)	25 (5.5%)	63 (9.4%)
Primary school	38 (18.3%)	1 (0.2%)	40 (6%)
Secondary	10 (4.7%)	2 (0.4%)	12 (1.8%)
Preparatory and above	23 (10.8%)	0 (0%)	23 (3.5%)
Wealth			
Poor	55 (25.6%)	109 (23.9%)	164 (24.4%)
Medium	82 (38.1%)	159 (34.9%)	241 (35.9%)
Rich	78 (36.3%)	188 (41.1%)	266 (39.7%)
Occupation			
Farmer	4 (1.9%)	456 (100%)	460 (68.6%)
Craftsmen	37 (17.2%)	0 (0%)	37 (5.5%)
Merchant	113 (52.6%)	0 (0%)	113 (16.8%)
Governmental employ	31 (14.4%)	0 (0%)	31 (4.6%)
House Wife	30 (13.9%)	0 (0%)	30 (4.5%)
Model household Graduates			
Graduates	127 (59.1%)	350 (76.8%)	477 (71.1%)
Not a graduate	88 (40.9%)	106 (23.2%)	194 (28.9%)

5.2. Characteristics of children

5.2.1 Age and sex distribution of children

A total of 671 children whose age group was 1-9 years from 671 households were included in the study. Three hundred fifty one (52.3%) of the children were males and three hundred twenty (47.7%) were females.

One hundred thirty three (19.8 %) spent most of the time play on street which is thirty two (14.9%) for urban and one hundred one (22.1%) for rural, three hundred forty (50.7%) spend most of their time at home in which one hundred sixteen (54 %) for urban and two hundred twenty four (49.1%) for rural. The remaining 198 (29.5%) spent most of the time on the field.

5.2.2. Face washing habit and facial condition of children

Out of the 671 children, two hundred ninety five (44%) of them washed their face once per day of which 34 (15.8%) were urban and 261 (57.2%) were rural, two hundred forty one (35.9%) of them washed their face twice per day 92 (42.8%) were urban and 149 (32.7%) for rural.

Among two hundred seventy nine (41.6%) of children who washed their faces using soap one hundred forty nine (69.3%) were from urban and one hundred thirty (28.5%) were rural, of the one hundred sixty two (58.1%) of those who use soap once during face washing and sixty five (23%) children uses soap twice during face washing.

Regarding discharges, 105 (15.6%) children had discharges on the eye of which 14(6.5%) were urban and 91 (20%) were rural. Among 671 children, 529 (78.8%) children had clean face of which 194 (90.2%) were urban and 335 (73.5%) were rural and 142 (21.2%) children had unclean face of which 21 (9.8%) were urban and 121 (26.5%) were rural.

Table-2- Face washing habit and facial condition of children in Dera woreda, Northwest Ethiopia, 2014

Category	Urban	Rural	Total
Face wash per day			
Once	34 (15.8%)	261 (57.2%)	295 (44%)
Twice	92 (42.8%)	149 (32.7%)	241 (35.9%)
More than two times	89 (41.4%)	46 (10.1%)	135 (20.1%)
Use soap			
Yes	149 (69.3%)	130 (28.5%)	279 (41.6%)
No	66 (30.7%)	326 (71.5%)	392 (58.4%)
Face washing per day using soap			
Once	70 (47%)	92 (70.8%)	162 (58.1%)
Twice	36 (24.2%)	29 (22.3%)	65 (23.3%)
More than two times	43 (28.9%)	9 (6.9%)	52 (18.6%)
Discharge on the eye			
Yes	14 (6.5%)	91 (20%)	105 (15.6%)
No	201 (93.5%)	369 (80%)	566 (84.4%)
Condition of the child's face			
Clean	194 (90.2%)	335 (73.5%)	529 (78.9%)
Unclean	21 (9.8%)	121 (26.5%)	142 (21.1%)
Number of Flies on the face			
0	104 (48.5%)	198 (43.5%)	302 (45%)
1 – 3	92 (42.7%)	187 (41%)	279 (41.5%)
4 – 7	17 (7.9%)	68 (14.8)	85 (12.7%)
>7	2 (0.9%)	3 (0.7%)	5 (0.8)

5.2.3. Zitromax prophylaxis's status

Out of 671 children 660 (98.4%) of them had receive zitromax prophylaxes, at least 1 dose, of which 210 (97.6%) of them were from urban and 450 (98.6%) of them were from rural and the remaining 11 (1.6%) did not receive zitromax prophylaxes at all of which 6 (2.3%) were urban and 5 (1%) were rural.

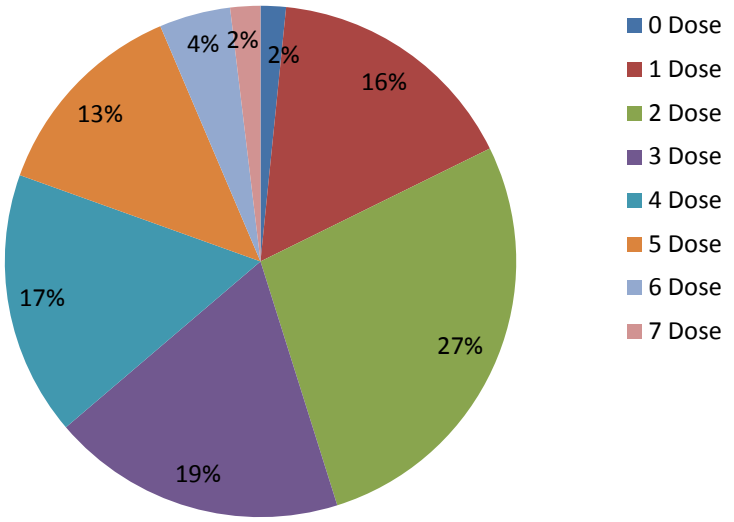


Figure 5: Children who had resieve zitromax prophelaxis's in Dera woreda, Northwest Ethiopia 2014

5.2.4. Prevalence of active trachoma

Out of 671 children who were screened for active trachoma 105 (15.6%) [95%CI 12.8-18.3] of the children had positive result for active trachoma of which twenty (9.3%) [95%CI 5.8-13.1] for urban and 85 (18.6%)[15.4 - 22.5] for rural. Out of 671 children examined for active trachoma 49 (14%) of them were males and 56 (17.5%) were females.

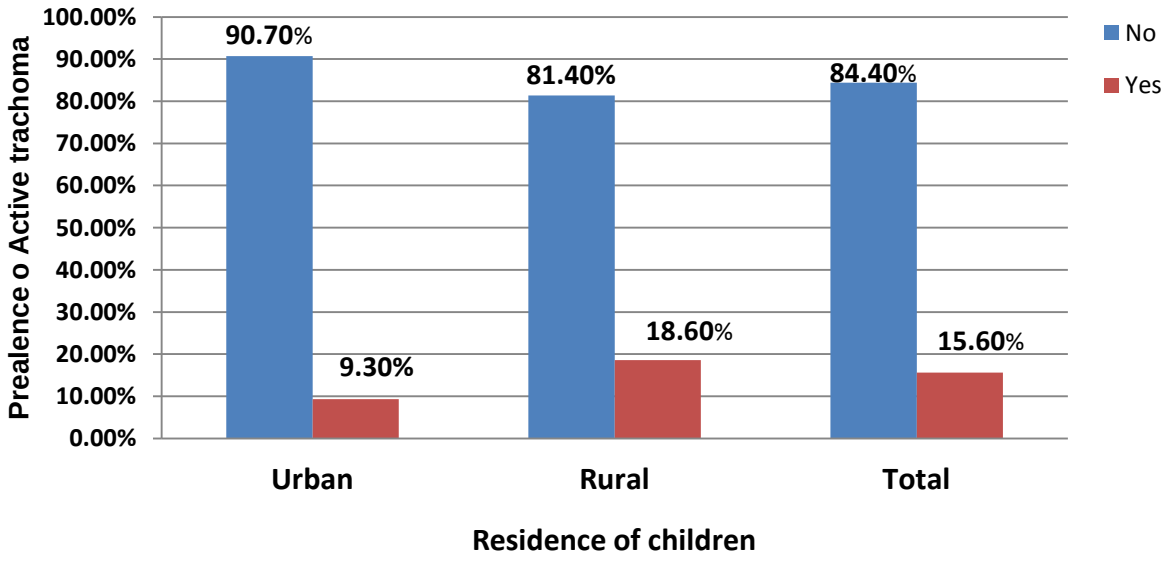


Figure 6 Prevalence of active trachoma stratified by residence in Dera woreda,Northwest Ethiopia 2014

5.3 Environmental and housing condition of child families

5.3.1 Water source and consumption

Out of 671 child families 202 (44.3%) get drinking water from protected well in rural areas whereas 7(3.3%) in urban, followed by 189 (87.9%) get drinking water from pipe line in urban area but there is no drinking water pipe line in rural areas and 108 (23.7%) rural respondent get from unprotected spring whereas 11 (5.1%) from the urban.

More than 90.7% child families who traveled less than 30 minutes to get water for daily consumption 214 (99.5%) of them from urban whereas 395 (86.6%) were from the rural. 1(1.6%) child families hold traveled greater than 30 minute to get water for daily consumption in urban area the rest 61 (15.4%) were from the rural.

About 533 (79.4%) of child families who gets water all year round 170 (79.1%) from urban and 363 (79.6%) from rural, and the remaining 138 (20.6%) who did not get water all year round 45 (20.9%) child families were from the urban and the rest 93 (20.4%) were from rural. The average water consumption per person was 8.7 1litre per person. Regard water consumption of the child families was 9.43 litres /person/ day for urban and 8.34 litres/ person/ day for rural.

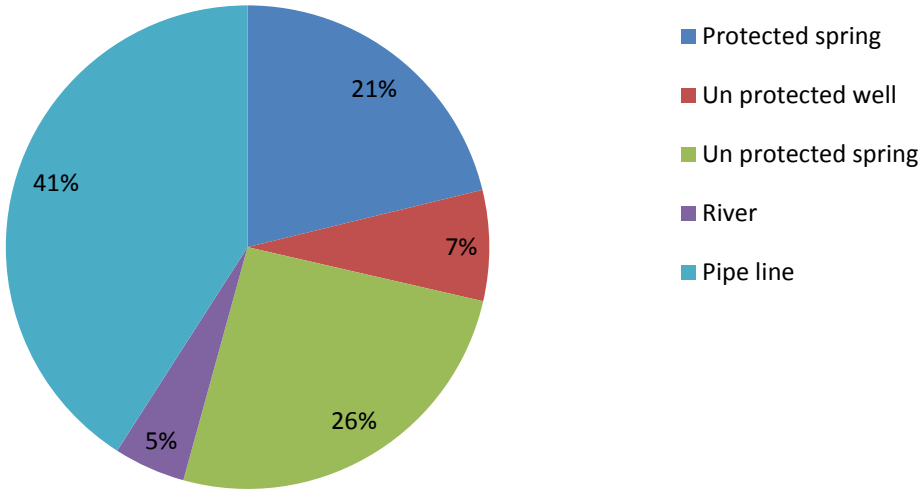


Figure-7- Main water source of child families for dailly consumption in Dera woreda, Northwest Ethiopia, 2014

5.3.2 Solid waste disposal area

In the study area, two hundred thirty (34.3%) of the child families have solid waste disposal pit, of which 87 (40.5%) in urban and 143 (31.4%) in rural whereas only 200 child families use their domestic solid waste pit 117 (25.6%) of them were from the rural the rest 83 (38.6 %) were from urban.

Among 441 (65.7%) child families who don't have solid waste pit, 76 (35.3%) from urban and 29 (6.4%) from rural, dispose their solid waste by burning, More than two third of child families who disposed their solid waste on open field 391 (83.6%) the disposal area was < 20 meters of which 142 (92.8%) for urban and 301(67.9%) for rural.

Among two hundred child families who use solid waste disposal pit it is observed waste in the pit in 190 (95%) and in about 164 (82%) of them the distance above the waste was greater than 0.5 meters. Out of 671 child families 264 (39.3%) had garbage around their homes of which 68 (31.6%) for urban and 196 (43%) for rural.

Table-3- Solid waste and garbage disposal systems of the child families in Dera woreda, Northwest Ethiopia, 2014

Variable	Urban	Rural	Total
Solid waste disposal area			
Solid waste disposal pit	83 (38.6%)	117 (25.6%)	200 (29.8%)
Burn it	76 (35.3%)	29 (6.4%)	105 (15.6%)
Dispose in the farm	2 (0.93%)	251 (55.2%)	253 (37.7%)
Simply dispose in its field	45 (20.9%)	59 (12.98%)	104 (15.6%)
Other	9 (4.1%)	0 (0%)	9 (1.3%)
Condition of solid waste disposal pit			
Functional	83 (95.4%)	117 (81.8%)	200 (87%)
Non functional	4 (4.6%)	26 (18.2%)	30 (13%)
Observe solid waste in the pit	80 (96.4%)	110 (94%)	190 (95%)
distance above the waste was >0.5 meter	78 (94%)	86 (73.5%)	164 (82%)
Garbage near the main house			
Yes	68 (31.6%)	196 (43%)	264 (39.3%)
No	147 (68.4%)	260 (57%)	407 (60.7%)
Distance of garbage near the main house			
≤15 meters	68 (100%)	193 (98.9)	261 (98.8%)
>15 meters	0 (0%)	3 (1.1%)	3 (1.2%)

5.3.3 Liquid waste disposal areas

In the study area, 138 (20.6%) child families have liquid waste disposal pits, of which 70 (32.6%) for urban and 68 (14.9%) for rural. 128 (92.8%) child families mostly dispose their domestic liquid wastes in the pit and the rest was non functional, the remaining households 394 (59.1%) dispose freely in front of the door, 80 (11.9%) dispose in the farm, 11(1.6%) child family dispose in the toilet. Among child families who disposed their liquid waste on open field and in the farm 543 (80.9%), 378 (69.6%) the disposal area was in less than 10 meters distance of which 142 (92.8%) for urban.

Table -4- Liquid waste disposal areas of the child families in Dera woreda, Northwest Ethiopia, 2014

Variable	Urban	Rural	Total
Solid waste disposal area			
liquid waste disposal pit	69 (32%)	59 (12.9%)	128 (19%)
In front of the door	126 (58.6%)	268 (58.8%)	394 (58.7%)
Dispose in the farm	0 (0%)	80 (17.5%)	80 (11.9%)
Dispose in the toilets	2 (0.93%)	9 (1.97%)	11 (1.64%)
Simply dispose in its field	18 (8.4%)	39 (8.5%)	57 (8.5%)
Other	0 (0%)	1 (0.2%)	1 (0.15%)
Condition of solid waste disposal pit			
Functional	69 (98.6%)	59 (86.8%)	128 (92.8%)
Non functional	1 (1.4%)	9 (13.2%)	10 (7.2%)
Observe liquid waste in the pit	56 (81.2%)	48 (81.4%)	104 (81.2%)
Pit has cover	44 (63.8%)	17 (28.8%)	61 (47.7%)
Liquid wastes near the main house			
Yes	42 (19.5%)	137 (30%)	179 (26.7%)
No	173 (80.5%)	319 (70%)	492 (73.3%)
Distance of liquid waste in the main house			
≤10 meters	42 (100%)	135 (98.5%)	177 (98.9)
>10 meters	0 (0%)	2 (1.5%)	2 (1.1%)

5.3.4. Latrine availability and utilization

At the time of the study, 428 (63.8%) child families had functional latrine. The available latrines in the child families were utilized by both adults and children were 296 (69.2%) and 132 (30.8%) are utilized by only adults. Among 428 functional latrines 417 (97.4%) households had use latrines every day, 401 (93.7%) of latrines had definite pathways to the latrine, 407 (95.1%) and 38 (8.9%) of child families latrines had observed feces on the slab and hole cover respectively.

Table 5 Condition of latrine availability among child families in Dera woreda, Northwest Ethiopia, 2014

Variable	Urban	Rural	Total
Latrine availability			
Yes	189 (87.9%)	280 (61.4%)	469 (69.9%)
No	26 (12.1%)	176 (38.6%)	202 (30.1%)
Latrine utilization			
Yes	187 (98.9%)	241(86.1%)	428 (91.2%)
No	2 (1.1%)	39 (13.9%)	41 (8.74%)
Who uses the latrine in the families			
Only adults	56 (29.9%)	76 (31.5%)	132 (30.8%)
Adults and children	131 (70.1%)	165 (68.5%)	296 (69.2%)
Condition of the latrines			
Latrine uses every day	185 (98.9%)	232 (96.3%)	417 (97.4)
Definite pathways to the latrine	178 (95.2%)	223 (92.5%)	401(93.7%)
Hole cover	28 (15%)	10 (4.1%)	38 (8.9%)
Privacy	177 (94.7)	223 (92.5%)	400 (93.5%)
Observe faces on the latrine slab	177 (94.7%)	230 (95.4%)	407 (95.1)
Human Faces around the main house			
Yes	22 (10.2%)	112 (24.6%)	134 (20%)
No	193 (89.8%)	344 (75.4%)	537 (80%)
Human Faces within 15 meter distance of the home			
≤15 meter	21 (95.5%)	109 (97.3%)	130 (97%)
>15 meter	1 (4.5%)	3 (2.7%)	4 (3%)

5.3.5. Cattle owner ship and kitchen utilization of child families

Out of 671 child families 486 (72.4%) of them had animals (cattle, sheep, goat, horse) and 267 (54.9%) of them shared the same room with animals where as 219 (45.1%) child families had a separate room for animals. Regarding to utilization of kitchen 440 (65.5%) child families cooked their food in separated room where as 231(34.5%) child families were cooked in their living room. Among 671 two hundred twelve (16.7%) child families were cooked by traditional smokeless stove whereas 559 (83.3%) had not traditional smokeless stove. Regard to source of energy for cooking of food 670 (99.9%) child families use wood and animal dung as a source of energy for cooking of foods.

Table-6- cattle ownership and kitchen utilization of the child families in Dera woreda, Northwest Ethiopia, 2014

Variable	Urban	Rural	Total
Cattle ownership			
Yes	30 (14%)	456 (100%)	486 (72.4%)
No	185 (86%)	0 (0%)	185 (27.6%)
Animals separated house			
Yes	41 (15.4%)	226 (84.6%)	267 (54.9%)
No	20 (9.1%)	199 (90.9%)	219 (45.1%)
A separated kitchen			
Yes	177 (82.3%)	263 (57.7%)	440 (65.6%)
No	38 (17.7%)	193 (42.3%)	231 (34.4%)
Traditional Smoke less stove			
Yes	46 (21.4%)	66 (14.5%)	112 (16.7%)
No	169 (78.6%)	390 (85.5%)	559 (83.3%)

5.4 Factors associated with Active trachoma

5.4.1. Factors associated with Active trachoma in urban children

Result of bivariate logistic regression analysis showed that model house hold, face washing, soap use, discharge on the eye, condition of face, solid waste disposal pit, garbage around main house, liquid waste disposal pit, liquid waste around main house, availability of latrine, feces around the main house and kitchen utilization were significantly associated with active trachoma for the urban children's.

The multivariate logistic regression analysis; Availability of latrine, Liquid waste around main house and Discharge on the eye were remained to significant and independently associated with active trachoma in urban children's.

Children's from urban who had discharge on the eye were 6.9 times more likely to had active trachoma as compared to children who had no discharge on the eye [AOR= 6.9, 95% CI=1.79-27.89]. Children from urban had liquid waste around the main house were 5.6 times [AOR= 5.60, 95% CI=1.94-16.18] more likely to had active trachoma as compared to their counterpart. Children's who had no latrine were 4.4 times more likely to had active trachoma as compared to their counterpart [AOR= 4.39, 95% CI=1.39-13.89].(Table 7)

Table 7 Bivariate and multivariate logistic regression on factors associated with active trachoma urban children in Dera Woreda, Northwest Ethiopia 2014

Variable	Active Trachoma		Crude OR	Adjusted OR
	Yes	No		
Model house hold				
Yes	8 (40%)	119 (61%)	1	
No	12 (60%)	76 (39%)	2.35(0.98-6.011)	
Face washing				
Once per day	7 (35%)	27 (13.8%)	7.43(1.79-30.75)	
Twice per day	10 (50%)	82 (42.1%)	3.49(0.93-13.16)	
More than two times	3 (15%)	86 (44.1%)	1	
Soap use				
Yes	9 (45%)	140 (71.8%)	1	
No	11 (55%)	55 (28.2%)	3.11(1.22-7.92)	
Discharge on the eye				
Yes	5 (25%)	9 (4.6%)	7.07(2.05-23.18)	6.98(1.79-27.9)***
No	15 (75%)	186 (95.4%)	1	1
Condition of face				
Clean	15 (75%)	179 (91.8%)	1	
Un clean	5 (25%)	16 (8.2%)	3.73(1.20-11.59)	
Solid waste disposal pit				
Yes	4 (20%)	83 (42.6%)	1	
No	16 (80%)	112 (57.4%)	2.96(0.96-9.19)	
Garbage around main house				
Yes	13 (65%)	55 (28.2%)	4.73(1.79-12.48)	
No	7 (35%)	140 (71.8%	1	
Liquid waste disposal				
Yes	2 (10%)	68 (34.9%)	1	
No	18 (90%)	127 (65.1%)	4.81(1.07-21.39)	
Liquid waste around the main house				
Yes	12 (60%)	30 (15.4%)	8.25(3.11-21.89)	5.60(1.94-16.18)**
No	8 (40%)	165 (84.5%)	1	1
Availability of latrine				
Yes	12 (60%)	177 (90.8%)	1	1
No	8 (40%)	18 (9.2%)	6.56(2.37-18.14)	4.39(1.39-13.89)*
Feces around the main house				
Yes	11 (55%)	11 (5.7%)	20.44(7.09-59.6)	
No	9 (45%)	184 (94.3%)	1	

Kitchen utilization			
Yes	10 (50%)	167 (85.6%)	1
No	10 (50%)	28 (14.4%)	5.96(2.27-15.63)

Note *** p value < 0.005 ** p value < 0.001 *p value < 0.012

5.4.2. Factors associated with Active trachoma in rural children

Result of bivariate logistic regression analysis ($p \leq 0.2$) showed that soap use, discharge on the eye, condition of face, solid waste disposal pit and feces around the main house were significantly associated with active trachoma for the rural children's.

The multivariate logistic regression analysis; discharge on the eye, unclean face and feces around the main house were remained to significant and independently associated with active trachoma in rural children's. Only discharges on the eye were significant at multivariate for both rural and urban dwellers.

Children from rural who had discharge on the eye were 5.8 times more likely to had active trachoma as compared to children who had no discharge on the eye [AOR= 5.86, 95% CI= 2.78-12.33]. Children's who had unclean face were 4.7 times [AOR=4.68, 95% CI 2.235-9.81] more likely to had Active trachoma as compared to their counterpart. Children's who live at rural in feces around the main house were 2 times (AOR= 1.94, 95% CI=1.04-3.62) more likely to had active trachoma as compared to children's living in the house free from feces around it. (Table 8)

Table 8 Bivariate and multivariate logistic regression on factors associated with active trachoma rural children in Dera Woreda, Northwest Ethiopia 2014

Variable	Active trachoma		Crude OR	Adjusted OR
	Yes	No		
Soap use				
Yes	18 (21.2%)	112 (30.2%)	0.62(0.35-1.094)	
No	67 (78.8%)	259 (69.8%)	1	
Discharge on the eye				
Yes	55 (64.7%)	35 (9.4%)	17.6(10.01-30.96)	5.86(2.78-12.33)**
No	30 (35.3%)	336 (90.6%)	1	
Condition of face				
Clean	23 (27.1%)	312 (84.1%)	1	
Un clean	62 (72.9%)	59 (15.9%)	14.28(8.19-24.79)	4.68(2.24-9.81)**
Solid waste disposal pit				
Yes	19 (22.4%)	124 (33.4%)	0.57(0.353-1.094)	
No	66 (77.6%)	247 (66.6%)	1	
Feces around the main house				
Yes	32 (37.6%)	80 (21.6%)	2.19(1.33 - 3.64)	1.94(1.04-3.62)**
No	53 (62.4%)	291 (78.4%)	1	

Note ** p value < 0.001

5.4.3. Factors associated with Active trachoma in Dera woreda

Factors which were associated with Active trachoma in the bivariate logistic regression at a ≤ 0.2 level of significant include residence of participants, wealth, frequency face washing per day, discharge on the eye, condition of children face, solid waste disposal pit, liquid waste disposal pit, garbage around the main house, liquid waste around the main house, human feces around the main house, cattle owners, kitchen separation from the main house, use of traditional smokeless stove for cooking purpose.

These factors were included in the multiple logistic regression analysis. Variables which were significantly associated with Active trachoma at a 0.05 level of significance in the multiple logistic regression analysis were discharge on the eye, condition of children face and there are any human feces around the main house significantly associated with active trachoma (Table 9)

Children with discharge on the eye were over 5 times more likely to have active trachoma than those children without discharge [AOR 5.31; 2.71-10.4]. Children with unclean faces were 4 times more likely to have active trachoma than children with clean faces [AOR 4.04; 95%CI: 2.11-7.73].

In addition children who live in vicinity which have feces around the main house were 3 times more likely to have active trachoma than children who live in vicinity which have not feces around the main house.[AOR 2.7; 95% CI: 1.53-4.78](table 9)

Table-9- Bivariate and multivariate logistic regression on factors associated with active trachoma, Dera Woreda, Northwest, Ethiopia 2014

Variable	Active trachoma		Crude OR(95%CI)	AOR(95%CI)
	Yes	No		
Residence				
Urban	20 (19%)	195 (34.5%)	1	
Rural	85 (81%)	371 (65.5%)	2.23(1.33-3.75)	
Wealth				
Poor	37 (35.2%)	127 (22.4%)	2.29(1.35-3.89)	
Medium	38 (36.2%)	203 (35.9%)	1.47(0.82-8.53)	
Rich	30 (41.7%)	236 (28.6%)	1	
Face washing				
Once per day	58 (55.2%)	237 (41.9%)	2.76(1.39-5.45)	
Twice per day	36 (34.3%)	205 (36.2%)	1.98(0.97-4.03)	
More than Two	11 (10.5%)	124 (21.9%)	1	
Condition of Face				
Clean	38 (36.2%)	491 (86.7%)	1	1
Un clean	67 (63.8%)	75 (13.3%)	11.54(7.24-18.40)	4.04(2.11-7.73)**
Discharge on the eye				
No	45 (42.9%)	522 (92.2%)	1	1
Yes	60 (57.1%)	44 (7.8%)	15.82(9.65-25.92)	5.31(2.71-10.4)**
Latrine Availability				
Yes	57 (54.3%)	412 (72.8%)	1	
No	48 (45.7%)	154 (27.2%)	2.25(1.47-3.45)	
Feces around the main house				
Yes	43 (41%)	91 (16.1%)	3.62(2.31-5.67)	2.7(1.53-4.78)*
No	62 (59%)	475 (83.9)	1	
Solid waste disposal pit				
Yes	23 (21.9%)	207 (36.6%)	1	
No	82 (78.1%)	359 (63.4%)	2.06(1.25-3.37)	
Garbage around the home				
Yes	52 (49.5%)	212 (37.5%)	1.64(1.07-2.49)	
NO	53 (50.5%)	354 (62.5%)	1	
Liquid waste disposal pit				
Yes	11 (10.5%)	127 (22.4%)	1	
No	94 (89.5%)	439 (77.6%)	2.47(1.28-4.76)	

Liquid waste around the main house			
Yes	48 (45.7%)	131 (23.1%)	2.79(1.81-4.302)
No	57 (54.3%)	435 (76.9%)	1
A separated kitchen			
Yes	42 (40%)	189 (56.4%)	1
No	63 (60%)	377 (77.1%)	1.34(0.86-2.040)
Traditional smoke less stove			
Yes	12 (21.4%)	100 (14.5%)	1
No	93 (78.6%)	466 (85.5%)	1.66(0.87-3.150)
Cattle owners			
Yes	88 (83.8%)	398 (70.3%)	2.19(1.26-3.79)
No	17 (16.2%)	168 (29.7%)	1

Note ** p value < 0.001 * p value = 0.001

1.0 is a reference category variable

The goodness of the model was assessed whether the required assumption for the application of multivariate loges tic regression was fulfilled showing that the model adequately fits the data (Hosmer and Lemeshow test as the p value = 0.088, p value = 0.263 and p value =0.459 for a district, urban and rural respectively).

6. DISCUSSION

In the present study the overall prevalence active trachoma in the district was found 15.8%, 18.6% among rural and 9.3% among urban children. The prevalence of active trachoma among children in rural area was much higher than urban areas. This may be due to the poor access of health services and environmental factors among the rural areas. For instance the availability and utilization of latrine among urban areas was much higher than the rural areas (87% vs. 52.8%). On the other hand the presence of cattle and separate cattle home, utilization of cattle dung for energy and presence of garbage and feces around the home may also contribute to the difference between rural and urban children for active trachoma prevalence.

This study revealed much higher prevalence as compared to other studies carried out in African countries such as Gambia (11), Sierra Lion (10), Cameroon (12), and Malawi (14) prevalence of active trachoma among children 1-9 years were 3.8%, 5%, 11.2% and 13.6% respectively.

The difference could be due to the following reasons: In sierra lion there was low prevalence of unclean face, good personnel hygiene, and there is availability of water. In Gambia there was 98% latrine access, 97% of them had disposal pit and 93% of the study participant move less than 30 kilometer to get water access. In Cameroon there was high coverage of mass drug administration. In Malawi there was 90% of water coverage. (10, 11, 12, 14)

The finding of the presence study was low as compared to other studies done in Ethiopia such as studies conducted in Ankober North shewa (17), Baso liben west Gojjam (18), Kersa in Jimma zone Oromia region(20); the prevalence of Active trachoma were 53.9%, 24.1% and 25.2% respectively.

This discrepancy in the magnitude of active trachoma may be due to latrine availability (24% in Ankober, 10% in kersa) and poor availability and accessibility of water (89% of study households in kersa >30 minutes walking distance get water) (17, 18, 20).

This result also low as compared to other African countries, like studies conducted in Nigeria (13) and Niger (15), prevalence of Active trachoma was 37.7% and 23.4% respectively. The difference could be due to mass drug distribution, personal and environmental factors including latrine availability (13, 15).

The result of this study showed that condition of the face was significantly associated with active trachoma in rural children's, The rural children with unclean faces was 4.7 times more likely to have active trachoma than children with clean faces.
This could be due to poor access of water supply; average water consumption of the study area was 8.6 liter per day per person, which is much lesser than the WHO standard 20 liter per day per person. Active trachoma is more prevalent in rural population without good water supplies and basic sanitation services than urban population with relatively better accessibly to water supply and sanitation.

Another explanation may be literacy rate of the urban children's house hold head may contribute to the difference. This finding was consistent with study finding in Nigeria (13) and Baso liben west Gojjam in Ethiopia (18).

In this study discharge on the eye were significantly associated with active trachoma among both urban and rural children's. The rural children who had discharge on the eye were 5.8times more likely to had active trachoma as compared to children who had no discharge on the eye whereas in urban children who had discharge on the eye were 7times more likely to had active trachoma as compared to children who had no discharge on the eye. The finding of this study was in line with studies conducted in Gambia (26).
In this study availability of latrine among urban children's were significantly associated with the prevalence of active trachoma whereas it's not significantly associated in rural areas. The urban children's who had no latrine were 4.4 times more likely to had active trachoma as compared to their counterpart.

This difference may be due to poor access of latrines among children's had active trachoma and children's had not active trachoma in rural areas, which is (52.8 %). Even though the association of the presence of a functional latrine near the house with lower trachoma prevalence has been detected by many investigators, the mechanism may be, the presence of latrine may reduce eye-seeking flies in the surrounding environment.

This finding was in line with the study finding in Dangila (19) shows that availability of latrines was significantly associated with the prevalence of active trachoma among urban children's.

The presence of liquid waste around the main house had significantly associated with prevalence of active trachoma among urban children's. Children from urban who had Liquid waste around the main house were 5.6 times more likely to had active trachoma as compared to their counterpart. This difference among rural and urban environment may be the presence of liquid waste around the main house were higher and persistent in urban area due to the presence of small scale industrial ecology in the urban area which leads the liquid waste more persistent and long lasting which is favorable environmental condition for the breeding of trachoma vector and etiology.

The presence of feces around the main house had significantly associated with prevalence of active trachoma among rural children's but its not significant factors for urban area. Children from rural who had feces around the main house were nearly 2 times more likely to had active trachoma as compared to their counterpart. The difference among rural and urban with regard to its significance may be due to the toilet facility (16% in urban area have not toilet facility, 45% rural area have not latrine facility) (28). This finding in line the study in china, children had a 2.5 times higher risk of active trachoma if they lived in households that reported defection close to the house (22).

The usual method of human feces disposal is open defecation in the bush between households and surrounding the villages. Human feces and, to a lesser extent, cattle dung are known to be the preferred breeding media for the fly vector of trachoma since isolated human feces on the soil surface are the best larval medium for Musca sorbens, the vector for trachoma; thus, removal of human feces from the environment will reduce fly density in the community (21).

7. LIMITATION OF THE STUDY

- Since the study was cross-sectional study it may not show a cause and effect relationships.

8. CONCLUSION AND RECOMMENDATION

8.1. Conclusions

- This study revealed that the overall prevalence of active trachoma among children was high**.** The prevalence was high among children from rural residence as compared to children from urban areas.
- Discharge on faces, unclean faces and feces around the main house were significant factors for active trachoma in rural residence children in Dera woreda. Whereas discharge on faces, latrine availability and liquid waste around the main house were significant factors for active trachoma in urban residence children in Dera woreda.
- In this study unclean face, discharge on faces and feces around the main house were significant factors for the occurrence of active trachoma in both rural and urban areas of Dera woreda.

8.2. Recommendation

To Dera woreda

- ☞ Dera woreda health office better to applied on improving face washing habit of children to reduce the magnitude of the disease.
- ☞ Dera wereda health office better to strengthen the environmental and personal hygiene program of the children.

To Dera woreda and interested NGO

- ➢ Strengthen the safe strategy which is tachiasis surgery, apply medication, face washing and environmental sanitation to control active trachoma by funding and sensitization the community**.**

9. REFERENCES

1. Karimurio J, Gichanngi M, Ilako DR, et al. prevalence of trachoma in six districts of Kenya. East Afr Med J, 2006; 83 (4):63 – 68.

2. World Health Organization. Report of the 2nd global scientific meeting on trachoma. WHO/PBD/GET 03,1 2003

3. Haddad D. the end game for blinding trachoma. World Ophthalmology News, 2012.

4. Mariotti SP, Pascolini D, Rose – Nnussbaumer J. global magnitude of a preventable cause of blindness. Br j Ophthalmol,2009, 93: 563 – 568

5. Berhane Y, Worku A, Bejiga A. National survey on Blindness, Low vision and Trachoma in Ethiopia. National Blindness & Low vision survey. 2006; 1 -65

6. World Health Organization. Planning meeting for Global Elimination of Trachoma: Geneva November 25-26, 1996.

7. Furtado, Lansingh VC Carter MJ, Milanese M, et al. Causes of blindness and Visual Impairment in Latin America. Surv Ophthalmol, 2012; 57(2):149-77.

8. World health organization (n.d) Global health atlas. Available: http://www.who.int/globalatlas Accessed 20 January 2014

9. Smith L. et al. The Geographical Distribution and Burden of Trachoma in Africa, LoS Negl Trop Dis,2013

10. J.B Koroma et al. The Epidemiology of Trachoma in the Five Northern Districts of Sierra Leone, Ophthalmic Epidemiology, 2011. 18(4), 150-157.

11. E. Quicke et al. Follicular trachoma and trichiasis prevalence in an urban community in The Gambia West Africa: is there a need to include urban areas in national trachoma surveillance? Tropical Medicine and international Health, November 2013. 18: 11(1344-1352).

12. Noa N. et al prevalence of trachoma in far north region of Cameroon: Results of a survey in 27 health district. Plos Negl Trop Dis. 2013; 7(5)

13. Mpyet C, Goyol M, Ogoshi C... Personal and environmental risk factors for active trachoma in children in Yobe state, north-eastern Nigeria. Trop Med Int health, 2010, 15(2):168-72

14. Kalua K. et al. Prevalence and risk factors for Trachoma in Central and Southern Malawi. PLoS ONE. 2010; 5(2)

15. Jonathan D. Trachoma among children in community surveys from four African countries and implications of using school surveys for evaluating prevalence, Published by Oxford University Press on behalf of Royal Society of Tropical Medicine and Hygiene, 2013

16. Polack S, Broker S, Kuper H, Mariotti S, Mabey D, Foster A. Mapping the global distribution of trachoma. Bull World Health Organ. 2005;3:913-19

17. Golovaty I, Jones L, Gelaye B, Tilahun M, Belete H, Kumie A, et al. Access to Water Source, Latrine Facilities and Other Risk Factors of Active trachoma in Ankober.PLoS ONE. 2009;4(8):6702

18. Ketema et al. Active trachoma and associated risk factors among children in Baso Liben District of East Gojjam, Ethiopia. BMC Public Health, 2012, 12:1105.

19. Gedefaw et al. Current state of active trachoma among elementary school students in the context of ambitious national growth plan: The case of Ethiopia, / Health,2013,1768-1773

20. Meseret E,Millicent M,et al. Rapid trachoma assessment in kersa district, southwest Ethiopia . Ethiop j health scie.2013,23 No 1

21. Emerson PM, Bailey RL, Walraven GEL et al. Human and other feces as breeding media for the trachoma vector M. Sorbens. Medical and veterinary Entomology,2001 15, 314-320

22. Yumei Z. et al. Coming National program of Epidemiological survey for trachoma: prevalence of trachoma in Northern china. JClin Exp Ophthalmol .2013;4:290

23. Vashist P. et al. Rapid assessment of trachoma in underserved population of car-nicober island India. PLos ONE. 2013; 8(6)

24. Wanq LH Prevalence of trachoma in rural primary school children n Tengzhou City of Shandong Province in China, 2010; 46(5):395-9.

25. Abdou A. et al. prevalence and risk factors for trachoma and ocular chlmydia trachoma infection in Niger. Br j ophthalmol. 2007;91: 13-17

26. Harding-Esch E, Edwards T, Mkocha H, Munoz B, Holland M, Trachoma prevalence and Associated Risk Factors in The Gambia and Tanzania: Baseline Results of a Cluster Randomized Controlled Trial. PLoS Negl Trop Dis, 2010; 4(11):861.

27. Edward T. et al. Risk factors for active trachoma and Chlamydia trachomatis infection in rural Ethiopia after mass treatment with azithromycin. Tropical medicine and international health. 2008; 13 : (4) 556-565

28. CSA. Ethiopia Demography and health survey 2011. Addis Abeba, Ethiopia: CSA, 2011.

Annex 1: The WHO standardized grading system for trachoma.

1. Normal eye lid

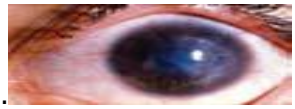
2) TF = Trachomatous inflammation—(follicles): five or more follicles, at least 0.5 mm in size, on the “flat” surface of the upper tarsal conjunctiva.

2) TI = Trachomatous inflammation—(intense): inflammatory thickening of the upper tarsal conjunctiva with more than half of the normal deep tarsal vessels obscured.

3) TS = Trachomatous scarring: scarring of the tarsal conjunctiva (fibrosis).

4) TT = Trachomatous trichiasis: at least one eyelash rubbing on the eyeball or evidence of eyelash removal

5) CO = Corneal Opacity: where at least part of the pupil is blurred or obscured



Annex 2 Information sheet

Title of the research project; Prevalence and risk factors of active trachoma among children age 1 – 9 years old in Rural and Urban kebeles, Dera Woreda, South Gondar, North West Ethiopia

Name of Investigator Metadel Alemayehu

Name of advisors1, Mr. Digsu Negese

2. Mr. Amare Tariku

Name of the organization; Institute of public health, college of medicine and health science, University of Gondar

Introduction

This information sheet and consent form is prepared with the aim of explaining about the research project that you are asking to join by the group of research investigators. It is prepared with clearing up of the research project to show ethical acceptance. The research project groups are the principal investigator, 20 health professional as Data collectors and 5 Supervisors for the data collection.

Purpose of research project

The main objective of this research project is to assess Prevalence and risk factors of active trachoma among children age 1 – 9 years old in Rural and Urban kebeles, Dera Woreda, South Gondar, North West Ethiopia.. This research project will provide valuable information about the trachoma control all level decision makers, health workers and health planers and also identifies associated factors for Active trachoma

Procedure

The data will collected from household heads by face-to-face interview through pre tested structured questionnaires by the data collectors and examine trachoma grading from children's age 1-9 by integrated eye workers. Permission will obtained from University of Gondar, kebele administrators and informed consent from each participants of the study.

Risk and/or discomfort

By participating in this research project, I believe that there is no risk except wasting of sometime about 20-30 minutes.

Benefit

If you are participating in this research project, the result of this study will have direct and indirect benefit on development of effective intervention program me for the prevention of Trachoma disease,

Incentives for participation

There will be no incentive or payment provided to take part in this research project

Confidentiality

The information collected from this research project will be kept confidentiality and will be kept in store locked with, your Name or any your personal identification will not be included in any part of this booklet, but a code number assigned to it will never revealed to anyone except the principal investigator

Right to refuse or with draw

Your participation in this research project is voluntary. You have full right to refused full or partially from participating in this research and again you can choose not to respond of the questions and this will not affect you from getting any kind of health related services.

Contact persons

This research project will review and approved by the Ethical clearance committee of University of Gondar. If you want to know more information, you can contact the through the address below. If you have any question or concern about this study, please contact the following individual.

1. Mr. Metadel Alemayehu Cell phone 09-18-78-15-19

E-mail alemayehumetadel@gmail.com

2 Mr. Digsu Negese E-mail digsuneg@gmail.com

3 Mr. Amare Tariku E-mail amaretariku15@yahoo.com

Annex 3 English consent form

My name is _____. I am working as data collector in the survey conducted by University of Gondar, College of medicine and institution of public health, and Department of MPH Epidemiology and Biostatics data investigator. These questionnaires are prepared to assess prevalence and associated factors of Trachoma among 1-9 years old in community of Dera woreda selected kebele

This study is designed to generate information for program expansion and designing strategies for preventions of Trachoma. To attain this purpose, your honest and genuine participation by responding to the question prepared is very important.

If you have been interviewed you will not be interviewed again and will send you off with thanks If not I request you to respond to my questions genuinely.

Confidentiality and consent

We would like to know your some personal issues, your answers and ideas are completely confidential in secured. Your name will not be written on this form. You can refuse to answer a sing question even to the extent to stop the interview at any time you want if you are not comfortable. We appreciate your kindness to be part of the study. The interview will take about 20-30 minutes.

Are you willing to participate?

If the answer yes ☐ ⟹ Continue

No ☐ ⟹ stop

Thank you very much

ANNEX 4: STUDY QUESTIONARIE ENGLISH VERSION

Section 1: Questioner identification

001-QIDN----------

002-date_____/_____/_____

003- Name of kebele_____

004-House Number _____

005-InterviewerName_____Sign_____date_____

007-Supervisor Name_____ Sign _____date_____

Section 2 - background characteristics (socio demography)

Notice: first write or circle the appropriate answer on the coding categories & also

Put on the coding column

	Questions	Option of answers	Skip
101	Sex of the respondent	1.Male 2.Female	
102	Age of the respondent	----------	
103	Residence of the respondent	1. Rural 2. Urban	
104	Marital status	1. Single 2. married 3. Divorced 4. Widowed 5. Separated	
105	Family size	---------	
106	What is your religion?	1. Protestant 2. Orthodox 3. Catholic 4. Muslim 5. other (specify)	
107	What is your ethnicity?	1. Amhara 2. Oromo 3. Tigrie 4. Other (specify)	

108	Educational status of the mother	1. Cannot read and write 2. Can read and write 3. Primary school (1-8) 4. Secondary school (9&10) 5. 11-12 grade 6. Diploma and above	
109	Educational status of the father	1. Cannot read and write 2. Can read and write 3. Primary school(1-8) 4. Secondary school(9&10) 5. 11-12 grade 6. Diploma and above	
110	Have you ever been graduated as a model household before?	1. Yes 2. No	

Section 3 - Socio economic variable

SN	Questions	Option of answers	Skip
201	Current occupation of head of the house	1. Farmer 2. Craftsmen 3. Merchant 4. Government Employee 5. Housewife 6. Other specify	

Wealth index of households related questions For urban inhabitants

A. For urban inhabitants

202	private home	1.Yes 2.No
	Type of house	1.Corgate iron sheet 2.tached roof
	Type of the wall	1. Cement 2. Mud 3.stone
	Type of floor	1. Cement 2. Mud
203	Electric city	1.Yes 2.No
204	A radio	1.Yes 2.No
205	A Television	1.Yes 2.No
206	A Mobile telephone	1.Yes 2.No
207	A Non-mobile telephone	1.Yes 2.No
208	A Refrigerator	1.Yes 2.No
209	A chair	1.Yes 2.No

210	A table	1.Yes 2.No
211	A bed with cotton/ sponge/spring matters	1.Yes 2.No
212	An electric mittad	1.Yes 2.No
213	Monthly family income?	----------

B. For Rural inhabitants

214	private home	1.Yes 2.No
	Type of the house	1. Corrugated iron sheet 2. attached roof
215	A radio	1.Yes 2.No
216	A mobile telephone	1.Yes 2.No
217	A table	1.Yes 2.No
218	A chair	1.Yes 2.No
219	A bed with cotton/ sponge/spring matters	1.Yes 2.No
220	A kerosene lamp/pressure lamp	1.Yes 2.No
221	Annual farm product per quintal	
222	Teff	---------- quintal
223	Wheat barley	---------- quintal
224	Maze	---------- quintal
225	Rise	---------- quintal
226	Onion	---------- quintal
227	Wheat	---------- quintal

228	Does household own any agricultural	1. Yes 2. No
229	How many (local units) of agricultural land do you won	Private ---------- (local unit) By rent ---------- (local units)
230	Presence of cattle's	
231	How money of the following animal does this household own?	Write "99" if none, write " 01" if more than one and write "00" if unknown
231	Milk cows, oxen or bulls	---------- in no
232	Horses, donkeys, or mules	---------- in no
233	Goats?	---------- in no
234	Sheep?	---------- in no
235	Chickens?	---------- in no
236	Beehives?	---------- in no

Section 3 -Personal character

201	Age of the selected child in year	----------	
302	Sex of the selected child	1.Male 2.Female	
303	Where does the child spend most of his time in the day?	1. Playing on street 2. at home 3. At school 4. Other (Specify) _	
304	How often does the child wash his/her face in a day?	1. Once 2. Twice 3. More than two	
305	Does the child use soap when washing his face?	1.Yes 2.No	
306	If “Yes” for question number “3”, how often soap is used to wash the child face?	1. One time 2. Two times 3. More than two times	
307	Did the child ever receive a zitromycin?	1.Yes 2.No	
308	If yes how many doses did he received?	----------	
309	Condition of the child’s face	1.Clean 2.unclean	
310	Result of the Eye examination for active trachoma	1. Yes 2. No	
311	If Yes, specify the stage of Trachoma	----------	

Section 4- Environmental factor

S.N	Questions	Option of answer	skip
401	What is the main source of water for the household?	1. Protected well 2. Protected spring 3. Unprotected well 4. Unprotected spring 5. River 6. Piped water	
402	Does your main water source last throughout the year?	1.Yes 2.No	
403	How much time will it take to walk and wait for water (round trip?)?	1. Less than 15 minutes 2. 15-30 minutes 3. 31-60 minutes 4. More than 60 minutes	
404	How much water consumption per day for the household?	----------meters	
405	Do you have solid waste disposal pit?	1. Yes 2. No	If the answer is No skip QN 307
406	Do you use the solid waste disposal pit?	1. Yes 2. NO	By observation
407	If the answer is yes(observation) Do you see a solid waste in the disposal pit?	1. Yes 2. No	
408	Is the distance above the waste in the disposal pit greater than 50cms?	1. Yes 2. NO	

409	What is the distance of the disposal pit from the household?	----------METERS	
410	If the answer is NO where do you dispose a solid waste?	1. Burn it 2. Bury 3. Dispose in the farm 4. Simply dispose it in other Place	
411	If “in open field” how far is it from the house?	----------meters	
412	Is there garbage within an area of 15 meters from the house?	1.Yes 2.No	
413	Do you have a disposal pit for liquid waste?	1.Yes 2.No	If the answer Is no go to QN 418
414	Do you use the liquid deposit pit?	1. Yes 2. We don’t use it	If the answer is don’t use it go to QN 418
415	If the answer is yes(observation) do you see the liquid waste in the deposit pit	1. Yes 2. No	
416	Does the liquid deposit pit have a cover?	1. Yes 2. No	
417	How far is the liquid deposit pit from the house hold?	----------meters	

418	If the answer is no where do you dispose a liquid waste?	1. Disposing in front of the door 2. Disposing on the farm 3. Disposing in the toilet 4. Disposing on the field 5. Other than the above-	
419	If the answer is on the field how far is from the house hold?	----------METERS	
420	Do you see a liquid waste within 10 meter distance of the house hold?	1. Yes 2. No	
421	Do you have latrine?	1. Yes 2. No	
422	If “Yes” is it functional?	1. Yes 2. No	
	If a toilet facility is present, Observe the following:		
423	Is there a definite pathway to the latrine?	1. Yes 2. No	
424	Does it have a cover?	1. Yes 2. No	
425	Is there enough privacy?	1. Yes 2. No	
226	Are there any feces within an area of 15 meters from the house?	1. Yes 2. No	

427	Who use the latrine in the household?	1. Only adults 2. Only children 3. Both adults and children	
428	Do you use it every day?	1. Yes 2. No	
429	Are there human feces with in an area of 15metres from the house?	1. Yes 2. No	
430	Do you have household animals (cattle, sheep, goats, horse)?	1. Yes 2. No	**IF the answer is" No" skip QN 432**
431	If the answer is yes, do the animals live in a separate house?	1. Yes 2. No	
432	Do you have a kitchen separated from the living room?	1. Yes 2. No	**If the answer is yes skip QN 434**
433	If the answer is no does your house has a chimney/outlet?	1. Yes 2. No	
434	What type of energy source do you use in the house hold?	1. Wood 2. Electric 3. Kerosene 4. Animal dung	

……Thank you very much for your co-operation ……

ANNEX 5: KSÖÃl ¾eUU'ƒ T[ÒÑÝ pê

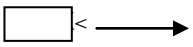
eT@ .....ÃvLM:: uÔ"Å` ¿'>y`e+ ¾lw[}cw Ö?" ›Övup ›="e+ƒ¿ƒ ¾G<K}— Ç=Ó] }T] KJ'" ¾SS[mÁ êG<ñ" *K=Á²ÒË LK c¨< S[Í uScwcw LÃ*Ñ—KG<:: S[Í ¾Ucueu¨< u.....ቀበሌ uƒ^¢T **uሽታላይ**¨<:: Ÿ'²=l SÖÃq‹ uÅ^ ¨[Ç Tlucw ¨<eØ uT>*\ ›v¨^¨‹ uƒ^¢T **uሽታላይመንስኤወችና** SŸLŸÁ LÃ KTØ"ƒ ¨<:: ÃI" ›LT KTd"ƒ ¾"}ÁM}qÖu }dƒö u×U ›eðLÑ> ¨<::

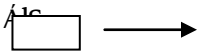
Ÿ²=l uòƒ ÃI"" SÖÃp }ÖÃk¨< ŸJ' ÉÒT> ›MÖÃp-ƒU:: "M}Ö¾l Ó" ¾T>Ÿ}K¨<" ¾eUU'ƒ SÓKÝ "'uwŸ<M-ƒ u%EL KSÖÃl ULi KSeÖƒ Ÿ}eTS< ØÁo-Š" uƒ¡¡M **°°"Ç=SMc<M˜ uƒlƒ"*°ÖÃp-ታKG<::

¾T>eØ^©'ƒ ¾eUU'ƒ SÓKÝ:- u²=l SÖÃp uƒ^¢T **uሽታላይነው** ULi- uõèU T>eØ^©'~ ¾}Öuk ¨<:: eU-U J' ›É^h- u²=l SÖÃp LÃ ›ÃS²ÑwU:: eK²=l *`c-ŸT>cÖ<˜ T"—¨<U ULi Ò` }ÁÃµ ›Ãk`wU:: ULi SeÖƒ ¾TÃðMÑ<uƒ ØÁo c=*` ›KSSKe" SÖÃl" uðKÑ<uƒ x‚ታ Ts[Ø c=ðMÑ< Ts[Ø Ã‹LK<:: KØÁo-‡ ULi c=cÖ< K'@ ÃeTTM ¨ÃU ÁeÅe‚ታM ¾T>K<ƒ" ULi dÃJ" ƒ¡¡K—¨<"" *`c-ÁS'<uƒ""¨<::

SÖÃl Ÿ20-30 Åmn-‹ ¾T>ðÏ ÃJ"M::

SÖÃl" KSSKe ðnÅ— '-ƒ :-

SMe- ›¨ ŸJ' 

›ÃÅKU ŸJ' 

u×U ›ScÓ"KG<

ANNEX 6: STUDY QUESTIONARIE AMHARIC VERSION

¡õM 0: ¾ØÁo SKÁ

001- SÖ¾p}^ lØ`----------

002 - k” —/———/ ———— ————

003 - ¾kuK? eU ————

004 - ¾u?ƒ lØ` ————————————

005 ¾ÖÁm¨< eU ———— ò`T ———— k” ———— ————

006 ¾c<ø`zÃ²` eU ———— ò`T ———— k” ———— ————

ክፍል አንድ፡- ማሕበራዊ መረጃዎች

}.l	ØÁo	ULi	⁌Kõ

101	¾}ÖÁm¨< ëታ❖	1. ¨"É 2. c?ƒ	
102	የተጠያቂ እድሜ	----------	
103	የተጠያቂ የመኖሪያ ቦታ	1. Ÿ}T 2. ÑÖ`	
104	የጋብቻ ሁ'ታ	1. ያላገባ/ች 2. ያገባ/ች 3. የፈታ/ች 4. የሞተባት/በት 5. ተለያይተው የሚኖሩ	
105	**የቤተሰብብዛት**	----------	
106	¾T>Ÿ}K<ƒ HÃT❖ƒ U"É" "¨<;	1. *` „Ê¡e 2. S<eK=U **3. ፕሮቴስታንት** 4. "„K=¡ 5. K?L "K ÃÑKê	
107	wN?[- U"É" "¨<;	1. ›T^ 2. *aV 3. ƒÓ_ 4. K?L	

108	¾MÏ ›“ƒ ¾ƒUI`ƒ Å[Í U”É” ”¨<;	1. T”uw“ Síõ ¾TÃ‹M/ƒ‹M 2. T”uw“ Síõ ¾T>‹M/ƒ‹M 3. ¾SËS]Á Å[Í ƒ/ƒ 4. G<K}— Å[Í ƒ/ƒ 5. 11-12/Sc“Ê ƒ/ƒ 6. Ç=ýKAT“ Ÿ²=Á uLÃ 7. K?L "K ÃÑKê	
109	**¾ልጅ እናት** ¾ƒUI`ƒ Å[Í U”É” ”¨<;	1. T”uw“ Síõ ¾TÃ‹M/ƒ‹M 2. T”uw“ Síõ ¾T>‹M/ƒ‹M 3. ¾SËS]Á Å[Í ƒ/ƒ 4. G<K}— Å[Í ƒ/ƒ 5. 11-12/Sc“Ê ƒ/ƒ 6. Ç=ýKAT“ Ÿ²=Á uLÃ 7. K?L "K ÃÑKê	
110	**በቤተሰብ አቀፍ የጤና ፓኬጅ ተመርቀዋል**	**1. አዎ** **2. የለም**	

ክፍል ሁለት - ኢኮኖሚያዊ መረጃወች

ተ.ቁ	ጥያቄ	መልስ	ማሳለፊያ
201	u›G<’< ¨pƒ uU” e^ LÃ }cT`}¨< ÃÑ—K<;	1. Ñu_ 2. ¾k” W^}— 3. ’ÒÈ 4. ¾S”Óeƒ W^}— 5. ¾u?ƒ *Su?ƒ 6. K?L "K ÃÑKê	

የ ቤተሰብ የ ሃብት መጠን መለኪያ ጥያቄዎች

- **ከተማ ነዋሪዎች ብቻ የሚጠየቅ**

202	መኖሪያቤቱ የግሌ ነው	1.አለ 2. የለም
	የቤቱ አይነት	1.ቆርቆሮ 2. ሳር ቤት
	የግድግዳ አይነት	1.ስሚንቶ 2.የጭቃ 3.የድንጋይ
	የወለሉ አይነት	1.ስሚንቶ 3. አፈር
203	መብራት	1.አለ 2. የለም
204	ሬዴዮ	1.አለ 2. የለም
205	ቴላቪዥን	1.አለ 2. የለም
206	ሞባይል	1.አለ 2. የለም
207	የቤት ስልክ	1.አለ 2. የለም
208	ፍሪጅ	1.አለ 2. የለም
209	ወንበር	1.አለ 2. የለም

210	ጠረንፔዛ	1.አለ 2. የለም
211	አሌጋ እና ከጥጥ የተሰራ ወይን እስፖንጅ ፍራሽ	1.አለ 2. የለም
212	የ ኤሌክትሪክ ምጣድ	1.አለ 2. የለም
213	ወርሃዊ የቤት ገቢ በብር	----------

- **ለገጠር ነዋሪዎች ብቻ የሚጠየቅ**

214	መኖሪያ ቤቱ የግል ነው	1.አዎ 2. አይደለም
	የቤቱ አይነት	1.ቆርቆሮ 2. የሳር ቤት
215	ሬዴዮ	1.አለ 2. የለም
216	ሞባይል	1.አለ 2. የለም
217	ወንበር	1.አለ 2. የለም
218	ጠረንፔዛ	1.አለ 2. የለም
219	አሌጋ እና ከጥጥ የተሰራ ወይን እስፖንጅ ፍራሽ	1.አለ 2. የለም
220	ኩራዝ ወይን ፋኖስ	1.አለ 2. የለም
221	አመታዊ የምርት ገቢ በኩንታል ስንት ነው	
222	ስንዳ	**---------- ኩንታል**
223	ጉበስ	---------- ኩንታል
224	በቆል	**---------- ኩንታል**
225	ሸንብራ	---------- ኩንታል
226	ሩዝ	**---------- ኩንታል**
227	ስንዴ	---------- ኩንታል

228	የለማ መሬት በሄክታር አለዎት	1.አለ 2. የለም
229	በግል የከራይ	---------- በገመድ/ሄክታር ---------- በገመድ/ሄክታር
230	የእንስሳት ሃብት	
231	የእንስሳት መጠን እና በአይነት በቤተሰብ ደረጃ	ምንም ከሌለ 99 ፣ ከ አንድ በላይ ካለ 01 ፣ እማይታወቅ ከሆነ 00 ብለው ይጻፉ

231	በሬ፣ሊም፣ጥጃ	---------- በቁጥር
232	ፈረስ፣ አህያ	---------- በቁጥር
233	በግ	---------- በቁጥር
234	ፍየል	---------- በቁጥር
235	ደሮ	---------- በቁጥር
236	የጉበ ቀፎ	---------- በቁጥር

<u>ክፍልሑለት</u>፡- ከግለሰብ (ሕጻኑ/ ኗ ጋር ተያያዥነት ያላቸው መረጃዎች

301	ሕጻኑ/ኗ እድሜ	----------	
302	ሕጻኑ/ኗ ጸታ	1.ወንድ 2.ሴት	
303	ሕጻኑ/ኗ አብዛኛውን ጊዜ የሚያሳልፈው የት ነው	1. መንገድ ላይ በመጫወት 2. ቤት ውስጥ 3. ትምህርት ቤት 4. ሌላ (ይገለጽ)-	
304	ሕጻኑ/ኗ በቀን ስንት ጊዜፊቱን/ቷን ይታጠባል/ ትታጠባለች?	1. አንድ ጊዜ 2. ሁለት ጊዜ 3. ከሁለት በላይ	
305	ሕጻኑ/ኗ ፊቱን ሲታጠብሳሙና ይጠቀማለ/ ትጠቀማለች?	1.አዎ 2.አይጠቀምም /አትጠቀምም	
306	መልስዎ “አዎይጠቀማል/ ትጠቀማለች” ከሆነ፣ሳሙና ስንት ጊዜ ይጠቀማለ/ትጠቀማለች?	1. አንድጊዜ 2. ሁለት ጊዜ 3. ከሁለት በላይ	
307	ሕጻኑ/ኗበዘመቻ የሚሰጥ የኢይን መድሀኒት ወስዳለች/ል	1. አዎ 2. የለም	
308	መልሱ አወ ከሆነ ለስንት ጊዜ	----------	
309	ሕጻኑ/ኗ ፊት ሁኔታ	1. ንጹህ 2. ንጹህ ያልሆነ	
310	ሕጻኑ/ኗ የትራኮማ በሽታ አለበት/ አለበት	1. አዎ 2. የለም	
311	መልሱ አወ ስንተኛው ደረጃ ትራኮማ	----------	

ተ.ቁ	ጥያቄ	መልስ	ማለፊያ
401	ለቤት የምትጠቀሙት ዉሃ የምታገኙት ከየት ነው?	1. ከታጠረ ጉድጓድ 2. ከታጠረ ምንጭ 3. ካታጠረ ጉድጓድ 4. ካታጠረ ምንጭ 5. ከወንዝ 6. ከቧንቧ	
402	ውሃው አመቱን ሙሉ አያቀርጥም	ነ. አወ 2. የለም	
403	ውሃ ቀድቶ ለመመለስ ምን ያህል ጊዜ ይፈጅባችኋል?	----------ደቂቃ	
404	በቀን ለቤት ምን ያህል ዉሃ ትቀዳላችሁ?	----------ሌትር	
405	የደረቅ ቆሻሻ የምታስወግዱት ጉድጋድ አላችሁየ?	1. አወ 2. የለም	መልሱ የለም ከሆነ ወደጥያቄ 410 ይለፉ
406	የደረቅ ቆሻሻ ጉድጋድን ትጠቀሙበታላችሁ	1. አወ 2. አንጠቀምበትም	መልሱ አንጠቀምበትም ከሆነ ወደ ጥያቄ 410 ይለፉ
407	መልሱ አወ (በምልከታየሚሞላ) ከሆነ ደረቅ ቆሻሻ ጉድገዱ የተጣለ ቆሻሻ ይታያል	1. አወ 2. የለም	
408	ከቆሻሻው በላይ ያለው የጉድገዱ ጥልቀት ከ 50 ሳ.ሜ በላይ ነው	1. አወ 2. አይደለም	
409	ጉድገዱ ከመኖሪያ ቤቱ በምን ያህል ይርቃል	----------ሜትር	
410	መልሱ የለም ከሆን ደረቅ ቆሻሻ የት ታስወግዳላችሁ	1. ማቃጠል	

		2. መቅበር 3. እርሻ ላይ መድፋት 4. መበተን 5. ሌላ ካለ ይገለጽ-----	
411	መልስዎ “ሜዳላይ” ከሆነ ከቤታችሁ ምን ያህል ይርቃል?	----------ሜትር	
412	ከመኖ ሪያ ቤቱ በ 15 ሜትር ርቀት የሚታይ ቆሻሻ አለ	1. አወ 2. የለም	
413	የፍሳሽ ቆሻሻ የምታስወግዱት ጉድጋድ አላችሁየ?	1. አወ 2. የለም	መልሱየለምከሆነወደጥያቄ418ይለፉ
414	የፍሳሽ ቆሻሻ ጉድጋድን ትጠቀሙበታላችሁ	1. አወ 2. አንጠቀምበትም	መልሱአንጠቀምበትምከሆነወደ418ጥያቄይለፉ
415	መልሱ አወ (በምልከታየሚሞላ) ከሆነ ፍሳሽ ቆሻሻ ጉድገዱ የተደፋ ፍሳሽ ይታያል	1. አወ 2. የለም	
416	ፍሳሽ ቆሻሻ ጉድገዱ ክዳን አለው	1.አወ 2.አይደለም	
417	ጉድገዱ ከመኖሪያ ቤቱ በምን ያህል ይርቃል	----------ሜትር	
418	መልሱ የለም ከሆን ፍሳሽ ቆሻሻ የት ታስወግዳላችሁ	1. በር ላይ መድፋት 2. እርሻ ላይ መድፋት 3. መጸዳጃ ቤት ውስጥ መድፋት 4. ሜዳ ላይ መድፋት 5. ሌላ ካለ ይገለጽ-----	
419	መልስዎ “ሜዳ ላይ ና እርሻ ላይ” ከሆነ ከመኖሪያ በቱ ምን ያህል ይርቃል?	----------ሜትር	

420	ከመኖሪያ ቤቱ በ 10ሜትር ርቀት የሚታይ ፍሳሽ ቆሻሻ አለ	1. አወ 2. የለም	
421	ሽንት ቤት አላችሁ?	1. አወ 2. የለም	መልሱ የለም ከሆነ ወደ ጥያቄ 430 የለፉ
422	መልስዎ “አዎ ” ከሆነ ሽንት ቤቱ በአሁኑ ጊዜ አገልግሎት እየሰጠ ነው?	1. አወ 2. የለም	መልሱ የለም ከሆነ ወደ ጥያቄ 430 ይለፉ
	መፀዳጀ ቤት ካለ የሚከተሉትን ተመልከቱ		
423	ወደ መፀዳጃ ቤት የሚወስድ መንገድ ምልክት አለው	1. ኣዎ 2. የለም	
424	በአግባቡ እየተጠቀሙበት ነው	1. ኣዎ 2. የለም	
425	ክዳን ኣለው	1. ኣዎ 2. የለም	
426	በቂ የሚስጥር ቦታ ኣለው	1. ኣዎ 2. የለም	
427	ሰገራ ከቤቱ በ15 ሜትር ርቀት ውስጥ ይገኛል ወይ	1. ኣዎ 2. የለም	
428	ሽንት ቤቱ አገልግሎት የሚሰጠው ለማን ነው?	1. ለአዋቂዎች ብቻ 2. ለህጻናት ብቻ 3. ለአዋቂዎች እና ለህጻናት	
429	ከሆነ ሽንት ቤቱን ሁልጊዜ ትጠቀሙበታላችሁ?	1. አወ 2. የለም	
430	የቤት እንስሳት (የቀንድ ከብት፣በግ፣ፍየል፣ፈረስ) አለዎት?	1. አዎ 2. የለም	መልሱ የለም ከሆነ ወደ ጥያቄ 432 ይለፉ

431	መልስዎ አዎ ከሆነ እንስሳዎቹ መኖሪያ ከቤተሰቡ መኖሪያ ለብቻው የተለየነው	1. አዎ 2. የለም	
432	ምግብ የምታበስሉበት ኩሽና ቤት አላችሁ?	1. አዎ 2. የለም	
433	መልስዎ “የለም ከሆነ የጭስ አልባ ምድጃ አለው?	1. አዎ 2. የለም	
434	ምግብ ለማብሰል የምትጠቀሙት ዋነኛ የሐይል ምንጭ ምንድ ነው?	1. እንጨት 2. ኤሌክትሪክ 3. ነጭጋዝ 4. ኩበት	

}Ö“kk eKƒww[- u×U ›ScÓ“KG<::

Annexe 7 Declaration

I, the undersigned MPH student declare that this is my original work in partial fulfilment of the requirements for the degree of master of public health.

Name Metadel Alemayehu

Date---------- Signature ----------

This thesis work had submitted for examination with my/our approval as university advisors

Advisors name:	Signature	Date
Mr Digsu Negese	_____	_____
Mr Amare Tariku	_____	_____